Pediatric Eye Problems When do I refer?

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Red Reflex Testing

- Check RR at every well child visit until child can participate in formal vision testing
- Quick, easy and cheap
- Detects many sight threatening conditions while they are still treatable

Red Reflex Testing

- Direct ophthalmoscope
- Large spot size
- Dim light
- Stand 2-3 feet from child
- Focus on child's face
- Evaluate both eyes simultaneously

Abnormal Red Reflex

- Corneal opacities
- Cataract
- Vitreous hemorrhage
- Retinal detachment
- Retinoblastoma
- Strabismus
- Refractive errors

Abnormal Red Reflex

- If the eye is white and quiet
  - Evaluation within 1 week
- If the eye is red or photophobic
  - Evaluation within 24-48 hours

Ptosis

- May cause amblyopia
  - Obstruction of the visual axis
  - Anisometropic astigmatism
- Chin up head posture
  - Shows child is using the eye
  - Don’t discourage

Ptosis

- Congenital ptosis
  - Common and frequently hereditary
  - Can be mild or severe
- Third nerve palsy
  - Any degree of ptosis
  - Normal, diminished or absent pupil response
  - Depression, elevation, and/or adduction deficit

Ptosis

- Horner’s syndrome
  - 1-2mm ptosis of upper and lower lids
  - Anisocoria worse in the dark
  - Variable anhidrosis
- Myasthenia gravis
  - Rare in children
- Marcus Gunn Jaw Wink
- Numerous syndromes

When do I refer?

- New onset ptosis
  - Within 48 hours
- New onset ptosis with pain, headache, diplopia or anisocoria
  - Urgent
- Congenital ptosis obstructing visual axis
  - Within first week of life
- Congenital ptosis with clear visual axis
  - Within 2 months

How do I know if ptosis or anisocoria is new?

- FAT scan
  - *F*amily *A*lbum *T*omography
  - Bring old photographs!

Strabismus

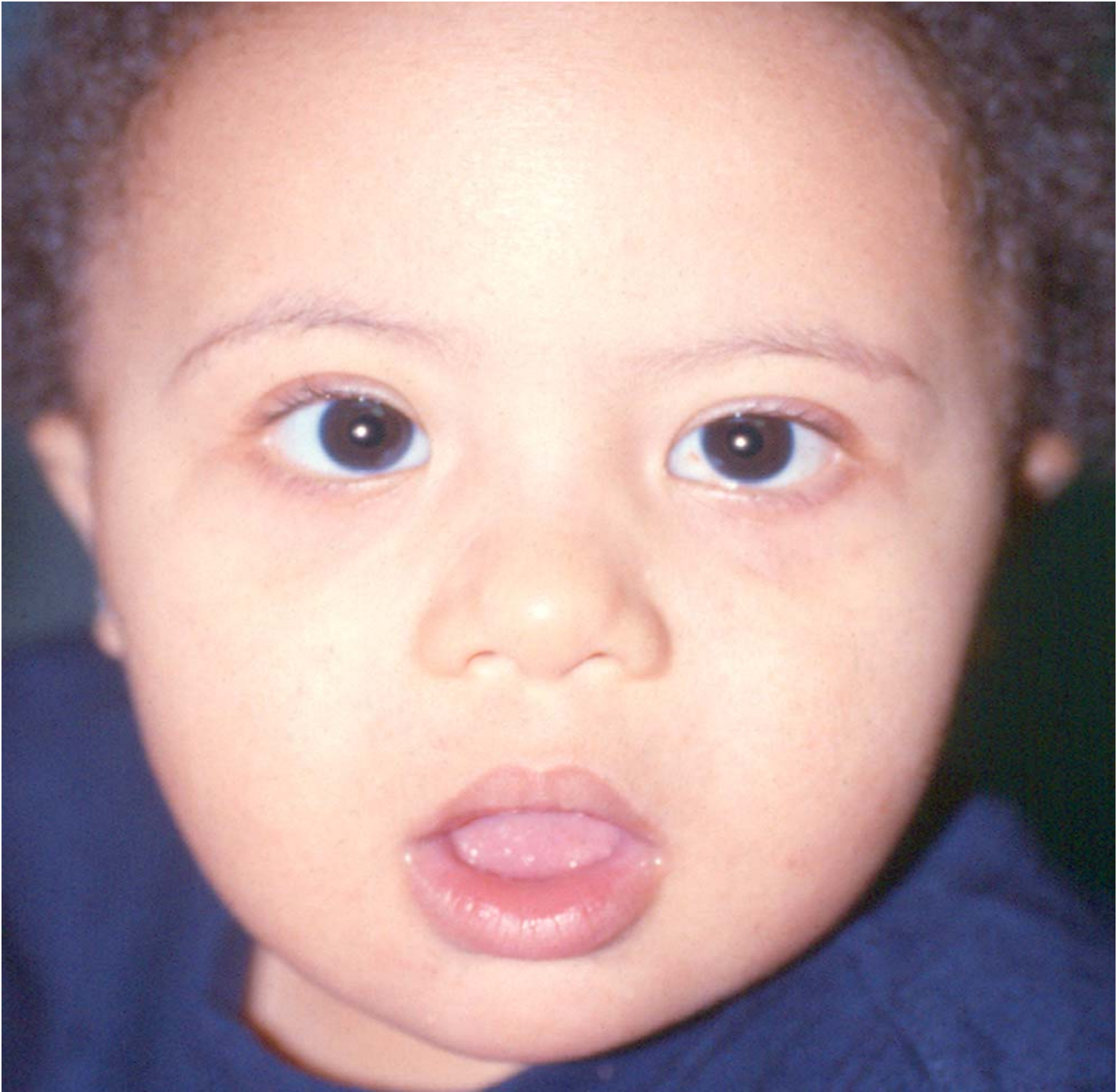
- Any strabismus beyond 12 weeks is abnormal
- Any constant strabismus before 12 weeks is abnormal
- Sudden onset, constant strabismus is abnormal at any age
- Children do not “grow out of” strabismus

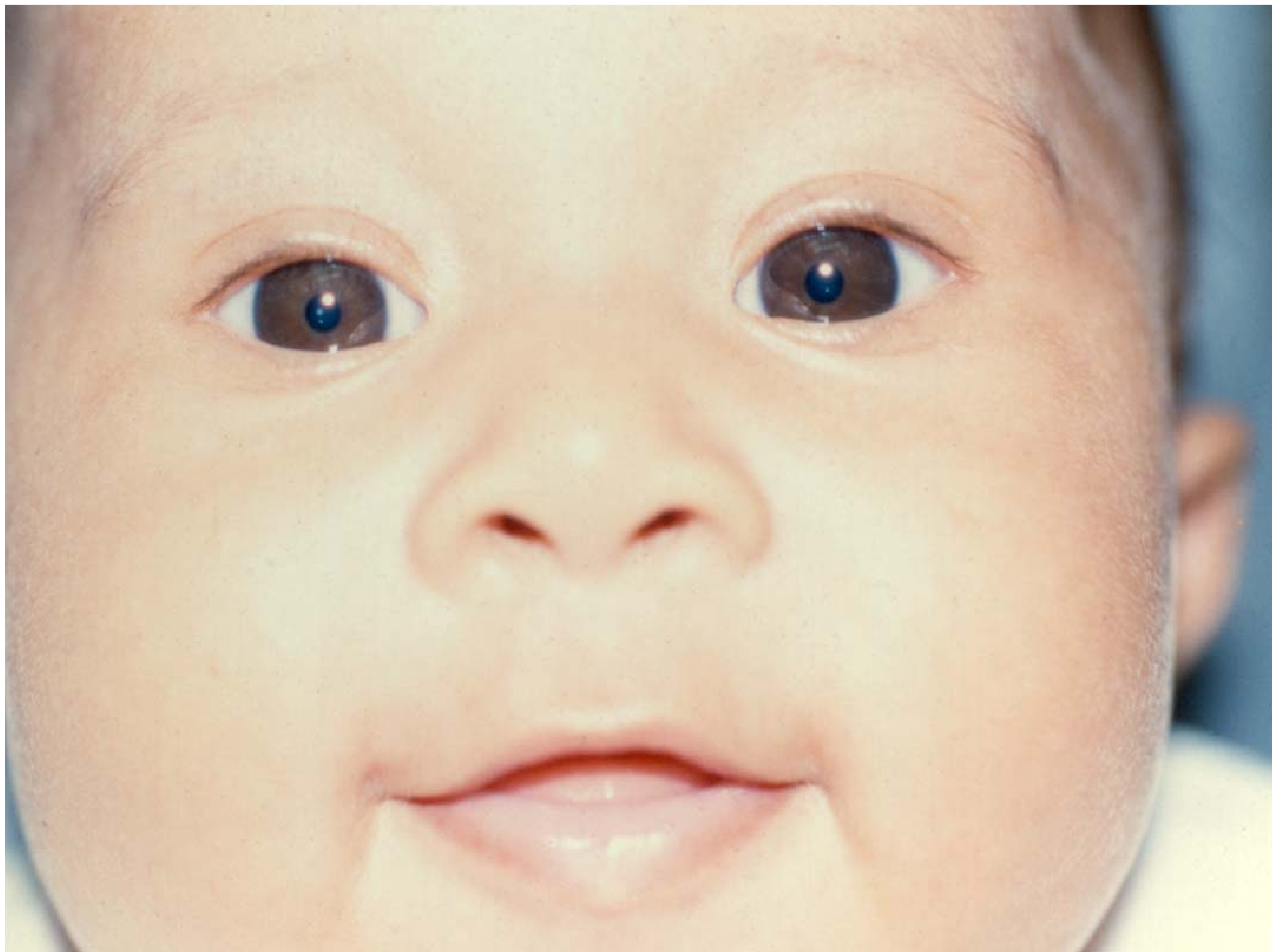
Esotropia

- Pseudoesotropia
- Infantile Esotropia
- Accommodative Esotropia
- Acquired Esotropia
- Duane’s Syndrome
- Sixth nerve palsy
- Unilateral vision loss (sensory esotropia)
  - Usually seen age 5 and under

Pseudoesotropia

- Wide, flat nasal bridge
- Epicanthus
- More prominent in side gaze and pictures
- Appearance improves with age
- Orthotropic on cross cover testing
- Corneal light reflex (Hirschberg test)
- Very common and worrisome to parents





Infantile Esotropia

- Constant large angle esotropia
- Onset prior to the age of 6 months
- Neurologically normal child
- Mild hyperopia

Infantile Esotropia

- Treatment
  - Treat amblyopia first
  - Early surgical correction gives best chance of stereopsis
  - Most children will require 2 or 3 eye muscle surgeries

Accommodative Esotropia

- Onset usually age 2 to 3 years
- Associated with accommodation (focusing)
- Moderate to high hyperopia
- Will be missed by Hirschberg test
  - Penlight is not an accommodative target
  - Use toy or picture

Accommodative Esotropia

- Treatment
  - Full time glasses use
  - Bifocal if crossing worse at near
  - Surgery for crossing not controlled by glasses
  - Treat any amblyopia present

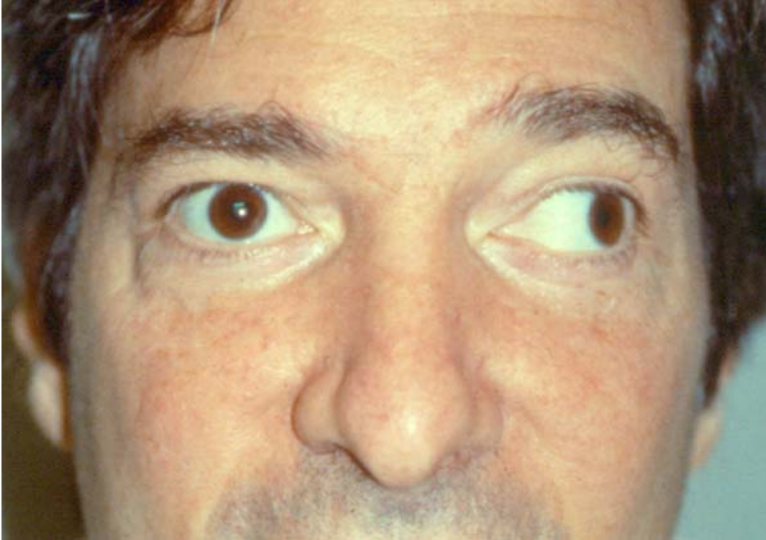
Intermittent Exotropia

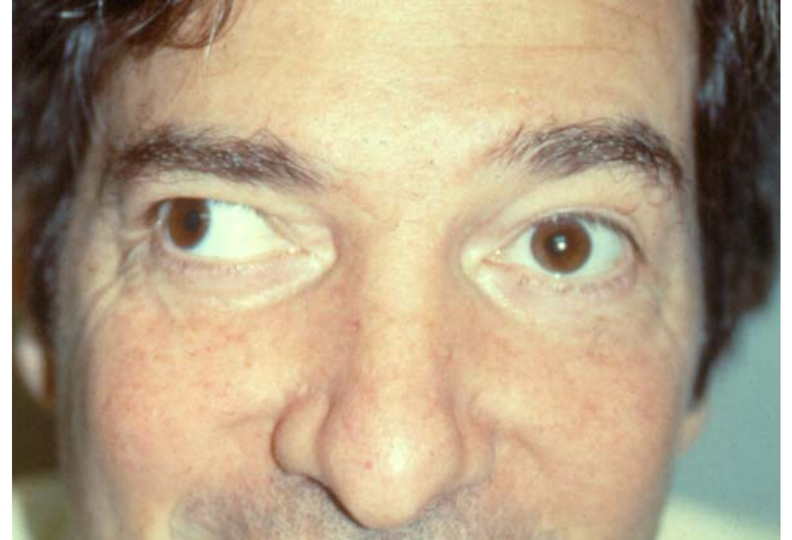
- Onset in early childhood
- Depth perception good when eyes aligned
- No depth perception when exotropic
- Worse when tired, ill or daydreaming

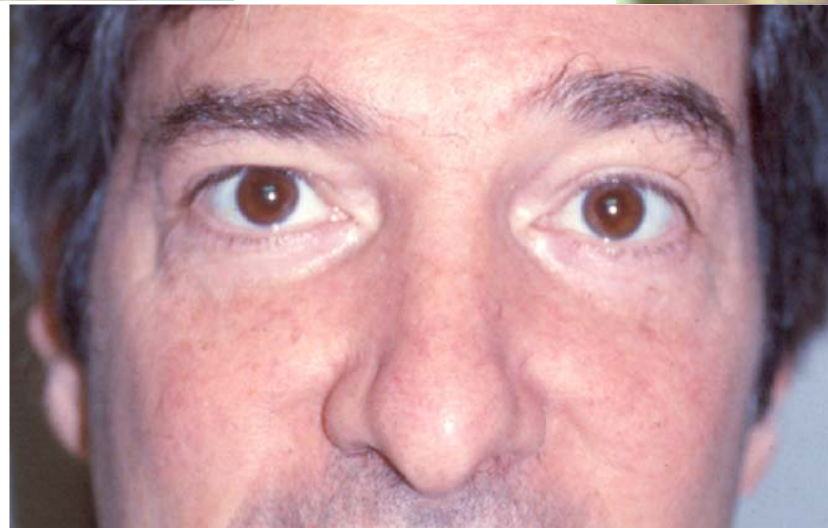
Intermittent Exotropia

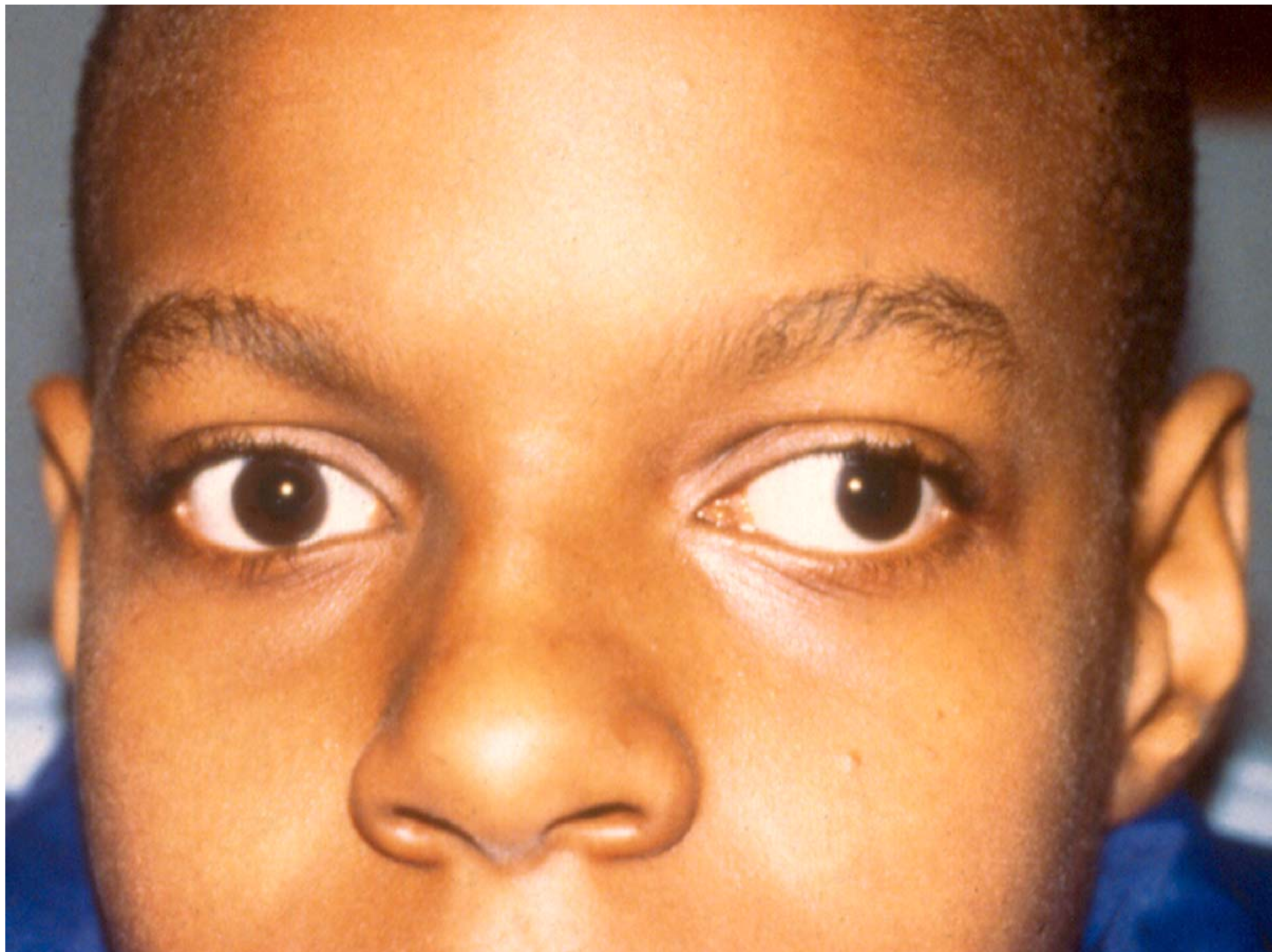
- Symptoms
  - Photophobia or unilateral eye closure
  - Diplopia
  - Headaches or eyestrain with reading
  - Blurry vision
  - Short attention span with near work
  - Blinking
  - Words moving around on the page

Intermittent Exotropia









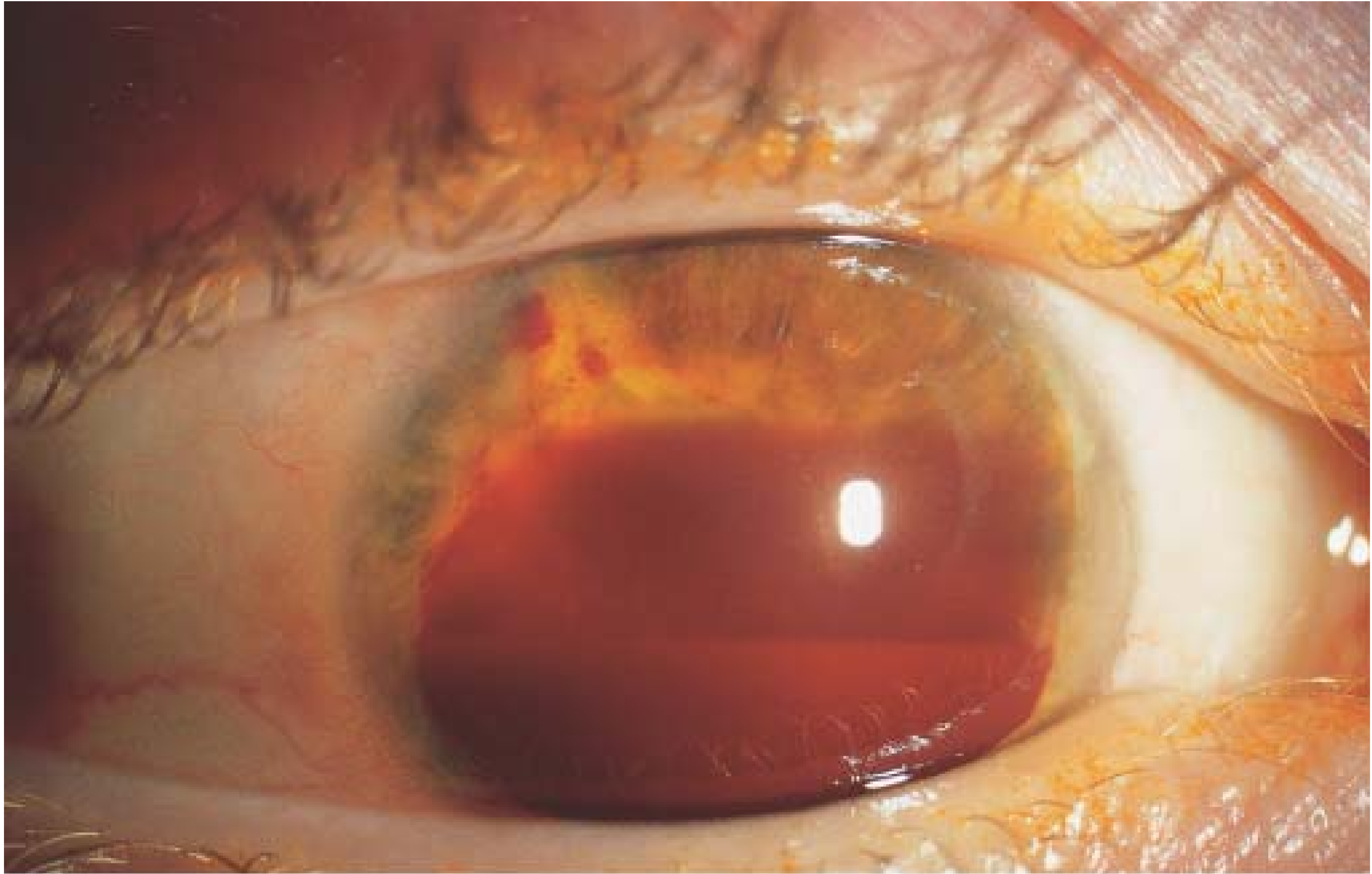
Intermittent Exotropia

- Treatment
  - Patching to improve control
  - Glasses with or without prism
  - Convergence exercises if small angle and worse at near
  - Surgery
    - deviation present >25% of waking hours
    - significant interference with school or social life

Blunt Ocular Trauma

- Iritis
- Hyphema
- Cataract
- Vitreous hemorrhage
- Retinal detachment
- Open globe
- Traumatic optic neuropathy
- Floor fracture

Hyphema



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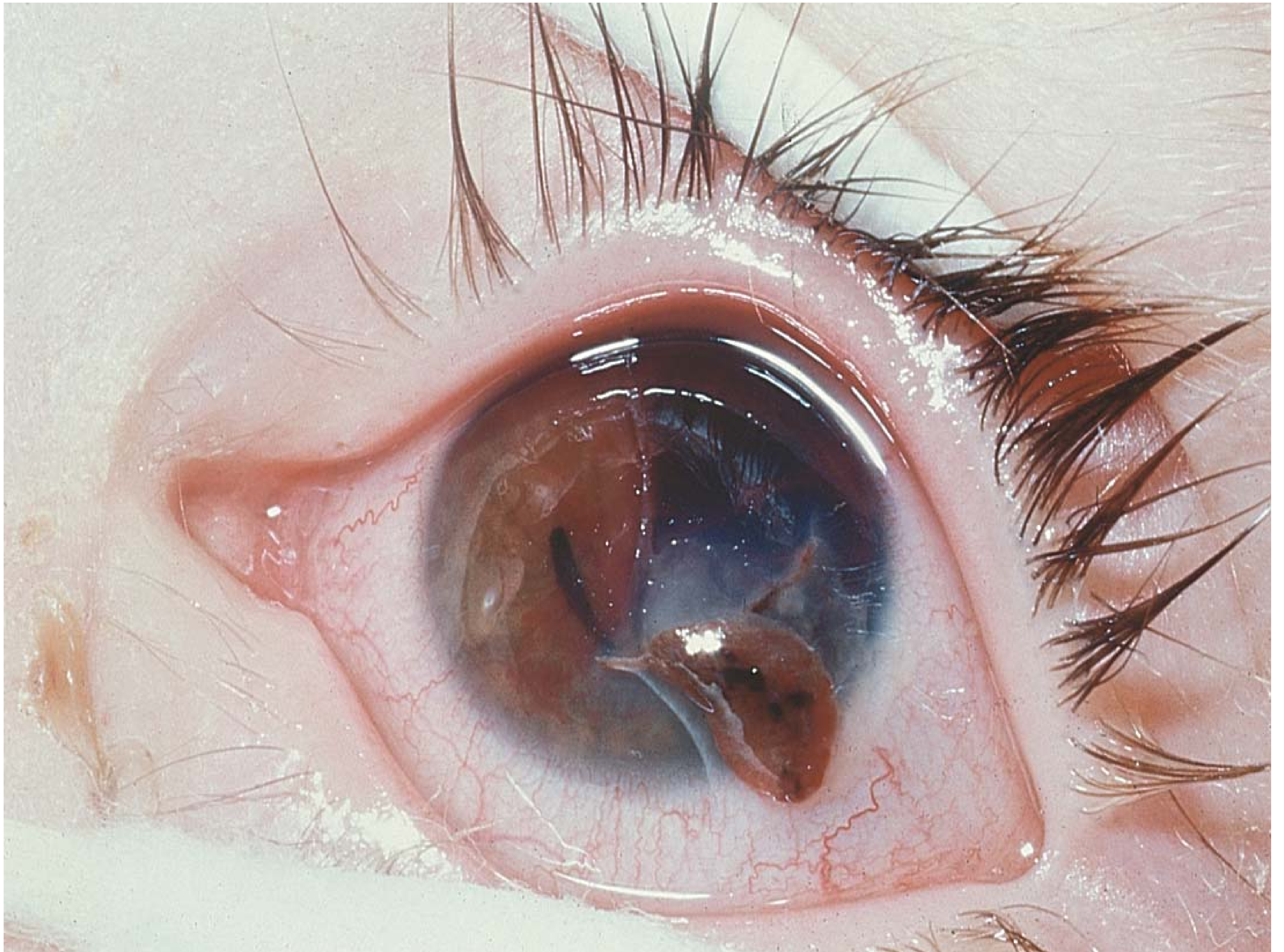
Blunt Ocular Trauma

- Should be seen by ophthalmology that day unless
  - Vision is normal
  - Pupil exam normal
  - Motility is normal
  - Eye is white and quiet
  - Family is reliable



Open Globe Injuries

- Place metal shield or styrofoam cup over eye
- NPO
- Rule out other injuries
- Call your friendly ophthalmologist

Corneal Abrasion

- Severe pain and photophobia
- Pain relieved with topical anesthetic
  - If pain is not relieved, intraocular process is likely.
- Rule out foreign body or penetrating injury

Corneal Abrasion

- Treatment
  - Pressure patch for older kids
  - Pain relief
  - Lacrilube PRN (try placing in fridge)
  - Avoid antibiotics unless dirty injury
    - ALL medications DELAY epithelial healing
  - Follow every 1 to 2 days

Corneal Abrasion

- Refer to ophthalmology if
  - Penetrating or other ocular injury can not be ruled out
  - Epithelial defect not improving daily
  - Any opacity of cornea
  - Child is too uncooperative to examine

Bacterial Conjunctivitis

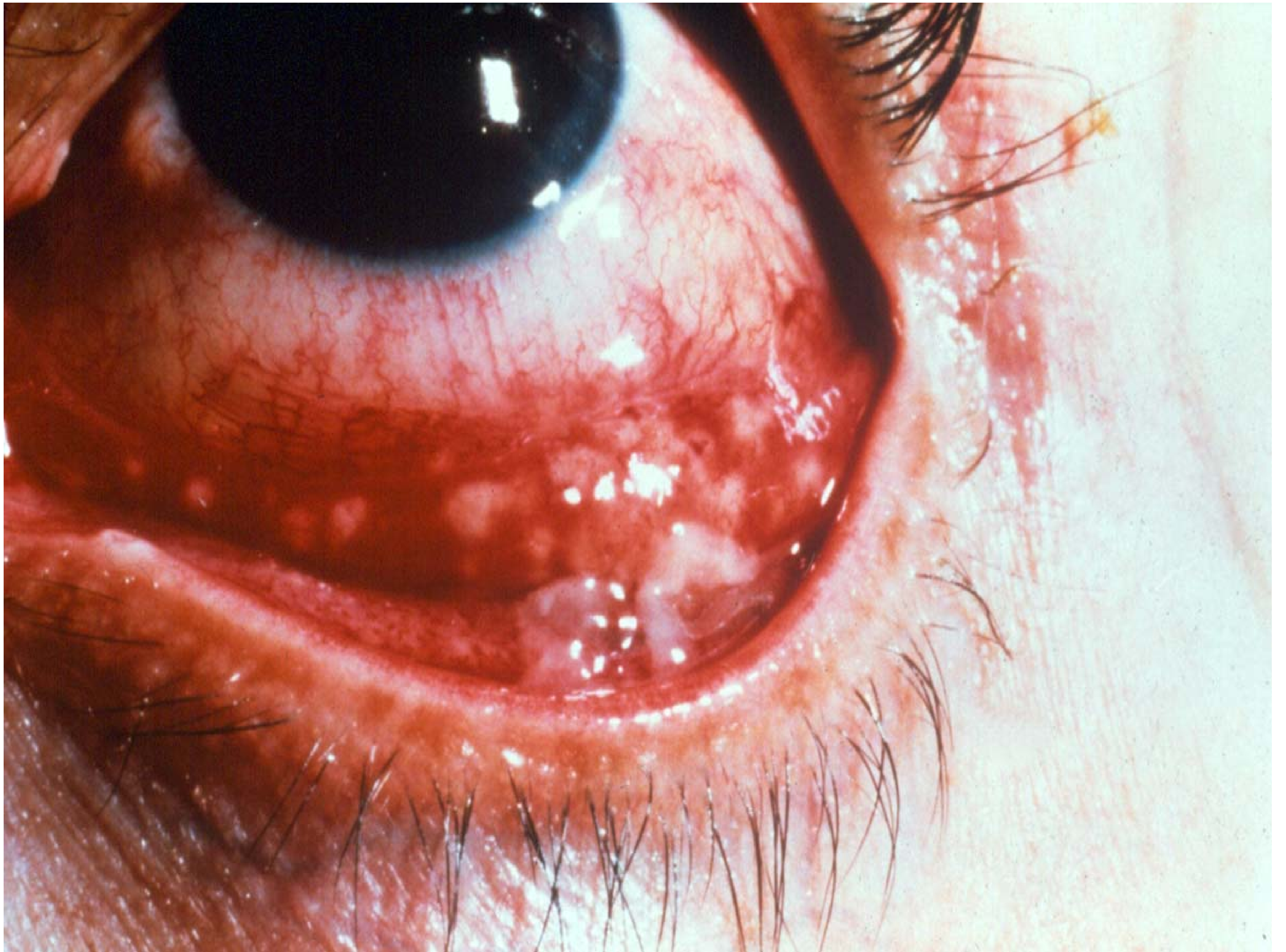
- Acute or subacute onset of red eye with significant mucous discharge
- Less than 5% of all conjunctivitis
- RARE in the absence of risk factors
  - Neonatal period
  - NLDO
  - Eyelid malposition
  - Conjunctival scarring
  - Poor hygiene

Bacterial Conjunctivitis

- Culture conjunctiva and treat with broad spectrum antibiotic
- Neonatal conjunctivitis requires topical and systemic treatment
- *Neisseria gonorrhoeae* requires IV or IM ceftriaxone, topical antibiotics, and Chlamydia treatment
  - Can penetrate intact corneal epithelium
  - Can rapidly progress to perforate the cornea

Viral Conjunctivitis

- Acute to subacute onset of tearing, red eye and mild white to yellow discharge
- Fellow eye may become involved within first few days
- Preauricular lymphadenopathy common
- Worsens over first 3-4 days and takes 7-10 days to clear
- History of viral URI or exposure to pink eye common



Viral Conjunctivitis

- Treatment is supportive with tears and cold compresses
- Highly infectious
  - Isolate patient in your office
  - Wipe everything with viricidal solution or 10% bleach solution
  - Virus can live on hard surfaces for up to 50 days

Viral Conjunctivitis

- Patient can not return to school or daycare until the eyes are white
- State law says they can return after 24 hours of antibiotic drops-NOT TRUE
- Family members should not touch their face or eyes unless they have washed their hands
- Wipe hard surfaces in home with bleach solution

Complications

- Subepithelial keratitis
  - Photophobia
  - Eye pain
  - Can require steroid drops for months
- Pseudomembranous conjunctivitis
  - Severe swelling
  - Can mimic preseptal cellulitis in kids under 2
  - Requires steroid drops
  - May result in conjunctival scarring like SJS

Viral Conjunctivitis

- Adenovirus
- Enterovirus
- Molluscum contagiosum
- Herpes simplex virus
- Varicella zoster virus
- Epstein Barr virus
- Measles virus
- Mumps virus

Toxic Conjunctivitis

- Follicular conjunctivitis
- Chronic red eye with minimal tearing and discharge
- Stop all eye medications
  - Antivirals
  - Glaucoma medications
  - Antibiotics
- Non-preserved artificial tears for comfort

Toxic Conjunctivitis

- Common reason why patients with viral conjunctivitis treated with antibiotic drops "relapse"
- Remember over the counter eye drops are big offenders
  - Visine and other "gets the red out" drops
  - Preserved artificial tears used more that QID

When do I refer?

- Pain
- Photophobia
- Corneal opacity
- Blurred vision
- Worsening despite treatment
- Failure to improve within a few days

Ocular Steroids

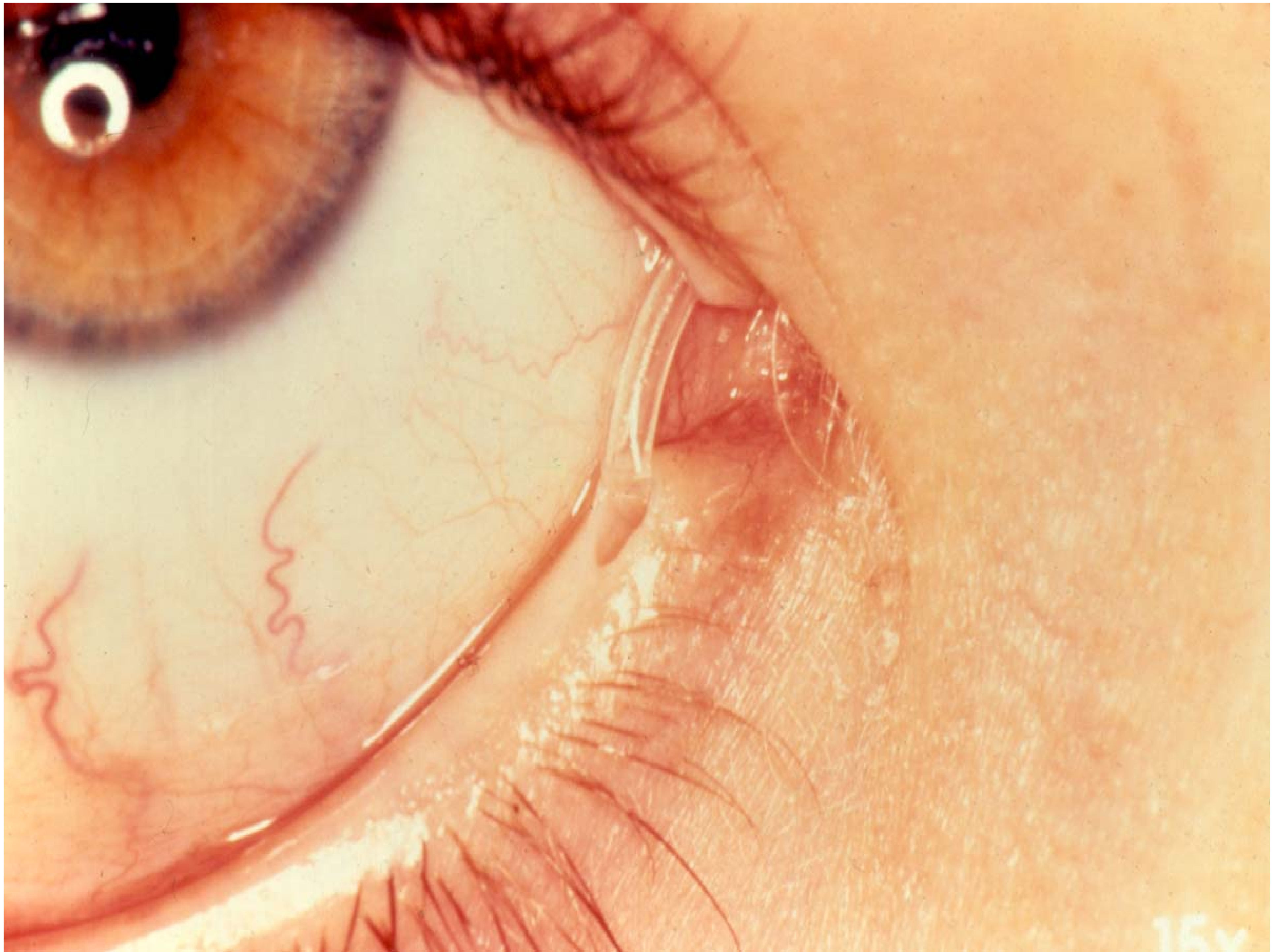
- Don’t EVER prescribe a steroid drop or ointment unless you are:
  - Armed with a slit lamp
  - Know how to use it
- Complications of ocular steroids
  - Cataracts
  - Glaucoma (up to 10%)
  - Reactivation of corneal herpes virus

Nasolacrimal Duct Obstruction (NLDO)

- Obstruction at distal end of duct
- 6% of newborns
- 90% resolve by 6 months
- 95% resolve by 9 months
- Tearing, mucous discharge
- WHITE eye

Treatment

- Massage sac with each feed
- Topical antibiotic drops after massage when infected
- Probe in office age 6-12 months
  - Object permanence
- Probe in OR anytime after 6 months
  - Tubes placed if necessary



When do I refer?

- Anytime after 6 months of age if parents want probe
- Cellulitis or dacryocystitis
- Red eye
- Tearing with photophobia, cloudy cornea, or enlarging corneal diameter
  - Must r/o glaucoma
  - Usually not subtle

Poor Vision in Infancy When do I refer?

- First month of life
  - No or questionable response to light
  - Poor pupillary light response
- Not fixing on mother’s face by 4 weeks
- Not fixing and following interesting toy by 3 months
- Not visually attentive distance and near by 6 months

Blurred Vision in Childhood
When do I refer?

- 20/40 vision or worse in one or both eyes
- 2 or more lines difference between eyes
- Headaches with near work
- Unexplained visual complaints from child or parents
  - Children rarely complain of blurred vision

Ocular Emergencies

- Call Dell ER for name of ophthalmologist on call (324-0150)
- Call that person directly for instructions
- During office hours, most of us would rather see them in office and admit directly to the floor or OR
  - Saves time and money by bypassing ER
- NPO if surgery may be required

Failed Vision Screens

- Most will be referred to optometrists who see children and don’t refer to vision therapists
- Abnormal exams will be referred to pediatric ophthalmology
- Most insurance will not pay a pediatric ophthalmologist for a normal exam!

Thank you for working with us!

- We have a severe shortage of pediatric ophthalmologists in the area.
- We are trying to see patients in a timely fashion by referring some patients to optometry or adult ophthalmologists when appropriate.
- For urgent issues, please call me or Dr. Melinda Rainey directly. It is OK to call our cell phone or interrupt us during clinic.